Oregon

Kate Brown, Governor

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SENT VIA EMAIL

October 19, 2015

Dennis McLerran
Regional Administrator
U. S. Environmental Protection Agency Region 10
1200 Sixth Avenue, Suite 900, M/S ECL-122
Seattle, Washington 98101-3140

Dear Mr. McLerran:

The Oregon Department of Environmental Quality (DEQ) is providing the following comments to the National Remedy Review Board (NRRB) and Contaminated Sediment Technical Advisory Group (CSTAG) for their consideration as they advise the U.S. Environmental Protection Agency (EPA) in its development of a proposed remedy for the Portland Harbor Superfund Site.

DEQ's roles and responsibilities on the Portland Harbor Superfund Site are defined, in part, in a Memorandum of Understanding between DEQ and EPA dated February 2001. The Memorandum of Understanding designates DEQ as the lead agency for overseeing upland source control actions and EPA as the lead agency for overseeing in-water actions. Our respective agencies support each other in their lead roles. Since EPA designated Portland Harbor as a Superfund Site in December 2000, DEQ has been an active participant on the "Government Team" and has provided substantial resources in the areas of engineering, risk assessment and hydrogeology. We have also worked diligently to integrate our oversight of upland cleanup sites with EPA's oversight of in-water activities.

Throughout the Remedial Investigation and Feasibility Study DEQ has also coordinated with the Oregon Governor's office and other State of Oregon (State) agencies including the Oregon Department of Fish and Wildlife, Oregon Health Authority, Oregon Marine Board, Oregon Department of State Lands, Oregon Department of Transportation, Business Oregon and the State Historic Preservation Office. We recently provided the State's comments on EPA's draft Feasibility Study, and our comments to the NRRB and CSTAG also reflect those Feasibility Study comments and the input of those parties.

Portland Harbor is Oregon's largest seaport. It is the heart of Oregon's industrial and transportation center providing 50 thousand plus direct and indirect jobs, over 3.6 billion dollars in wages and salaries and more than 350 million dollars in state and local tax revenue. The Portland Harbor reach of the Willamette River also provides important aquatic and riparian habitat for fish and wildlife including runs of threatened salmonids. This stretch of the river includes important fishing and recreational opportunities in Oregon's most populous area, where many members of the community rely on fishing for food and their livelihood. The Willamette River has been an important cultural place for many tribal nations for thousands of years, and continues to have special significance for all Oregonians.

Finally, the State has been concerned about the amount of time taken to complete the Remedial Investigation and Feasibility Study and remains concerned about the time frame for remedy selection and implementation. Considering the importance of the Lower Willamette River as an engine for economic activity and employment and to the community in general, any further delays in providing a clear framework for the clean-up of the harbor should be avoided. We cannot overemphasize the importance of EPA maintaining the project schedule, which provides for the Record of Decision being issued in 2016. It is also imperative that EPA expand public engagement in advance of the Proposed Plan in order to provide for meaningful public involvement in the development of the remedy. And, we encourage EPA to begin discussing how a remedy will be implemented with the State, potential performing parties and other stakeholders so that the remedial action objectives can be achieved as quickly as possible.

Sincerely,

Dick Pedersen
Director

Enclosures: State of Oregon Comments to NRRB and CSTAG
Exhibit A Downtown Portland Sediment Study – 2011 Update
Exhibit B LWG's MNR Modeling Approach

CC: Jim Woolford, Director, Office of Superfund Remediation and Technology Innovation, U.S. EPA
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State of Oregon Comments to the National Remedy Review Board (NRRB) and Contaminated Sediment Technical Advisory Group (CSTAG)
Portland Harbor Superfund Site
October 19, 2015

Source Control

Upland source control is the foundation upon which the in-water remedy will be constructed. The Portland Harbor source control program is unique and groundbreaking in many ways, most notably in that comprehensive identification and control of sources will be complete prior to implementation of the in-water remedy. Tools that accomplished this included early development of the DEQ/EPA Portland Harbor Joint Source Control Strategy in 2005 http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/jointsource.htm, aggressive characterization and evaluation of the stormwater pathway through development of guidance in 2009 http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/stormwater.htm and annual tracking and reporting of source control measure implementation and performance. We believe it is a model for future sediment remedial projects, and encourage the NRRB and CSTAG to review the Portland Harbor Upland Source Control Summary Report http://www.deq.state.or.us/lq/cu/nwr/portlandharbor/report.html and view our outreach video https://vimeo.com/channels/phscmodules.

DEQ issued our Portland Harbor Upland Source Control Summary Report in November of 2014. The report summarizes the status of source identification, characterization, evaluation and control efforts. It identifies the remaining source control work and provides a schedule for completion of this work. The report will be updated in early 2016 to support public review and comment on EPA's Proposed Plan. To more effectively engage the public on DEQ's source control work we produced a video which uses historical photos, site footage, animation and interviews with local stakeholders to tell the source control story: "Portland Harbor Source Control the Cleanup Before the Cleanup." We have shown this video in dozens of settings ranging from the Portland Harbor Community Advisory Group and affected neighborhood associations to the popular science lecture series known as Science on Tap.

DEQ applied the Joint Source Control Strategy in collaboration with EPA to identify, evaluate and control contaminant sources from the uplands to the river via groundwater, soil erosion and stormwater:

- Groundwater source control measures are in place or planned for the groundwater plumes that present a potential to recontaminate river sediment.
- Riverbanks with potential sources are either being addressed by DEQ efforts or will be integrated into the EPA in-water remedial program.
- Stormwater contributions from ~50% of the drainage area are very clean, originating in Forest Park. Combined Sewer Overflows were controlled in 2000-2011. Stormwater source control evaluations were conducted at up to 170 sites following DEQ's Guidance for Evaluating the Stormwater Pathway at Upland Sites. Approximately 90 industrial sites manage on-going stormwater discharges under NPDES permits and another 90 are certified to have no exposure of industrial activities to stormwater. In sum, the potential for sediment recontamination via stormwater is low and mechanisms are in place to adaptively manage on-going stormwater discharges.

DEQ also engaged a group of local business leaders, the City of Portland and TriMet to conduct an extensive sediment investigation in the four mile reach immediate up river of Portland Harbor. Following the collection of 153 sediment samples over two phases of work, DEQ concluded, with EPA's concurrence, that the "Downtown Reach" does not pose a recontamination threat to Portland Harbor and will not impede

remedy implementation. Results of this work can be viewed on DEQ's web site for the Downtown Portland Sediment Study: http://www.deq.state.or.us/lq/cu/nwr/willametteriver.htm. The project fact sheet is provided in Exhibit A.

Evaluation of the need for upland source control measures is substantially complete and necessary controls are implemented or planned, along with measures to demonstrate their long term effectiveness prior to implementation of the in-water remedy. These efforts, which are notably earlier and more comprehensive than at other sediment sites with completed RODs, have reduced the threats of recontamination and unacceptable in-water risk sufficiently to allow the in-water remedy to be implemented.

Notwithstanding these successes, the State is concerned about the level of uncertainty regarding source control performance standards based on water quality and drinking water ARARs. Assurance is needed that EPA's remedy aligns CERCLA with the Clean Water Act by following national guidance on implementation of water quality criteria and other Clean Water Act programs. This, along with jointly agreed to definitions of sediment recontamination and acceptable in-water risk, will aid in on-going collaboration between DEQ and EPA on development of a valid monitoring plan to demonstrate remedy success. A well defined data management plan and actively managed database must be critical components of the long-term monitoring plan.

Balancing of Remedy Selection Factors

The State recognizes that the remedial alternatives presented in the draft FS involve trade-offs between a number of factors including short and long-term impacts as well as the pace and cost of implementation. As the remedy selection process moves forward, we encourage EPA to build adaptability into the remedy so that it allows for refinement as additional data become available, particularly during remedial design. The unique physical and contaminant distribution characteristics of individual sediment management areas will likely warrant variations from the generic approach and this should be explicitly recognized in the ROD. Ultimately, EPA should select a remedial alternative for Portland Harbor that is protective of human health and the environment, while considering cost and the following factors that also are of significant importance to the State:

- Assuring that the remedy is implementable from an administrative and technical perspective.
- Achieving the Remedial Action Objectives more quickly.
- Reducing risk remaining at construction completion.
- Limiting habitat impacts and need for mitigation.
- Limiting reliance on engineering controls over large areas that may adversely impact current and future uses of the Harbor.
- Limiting reliance on institutional controls, such as fish advisories, which often have low reliability.
- Limiting restrictions on current and future uses of the Harbor and impacts on business opportunities.
- Limiting reliance on monitored natural recovery, except in specific locations where there is a strong scientific consensus that it will be effective.
- Minimizing implementation risk.

Opportunities to Reduce Cost in Refining the Preferred Alternative

There are significant differences between the Lower Willamette Group (LWG) and EPA cost estimates for the remedial alternatives identified in the FS. The State encourages the NRRB and CSTAG to assess the reasons for these substantial differences, and to look for ways that EPA can reduce costs without undermining the protectiveness and overall feasibility of the remedy. The State is concerned that potentially liable parties will choose to litigate rather than implement a remedy that is too expensive or based on an estimate that is not transparent and that does not accurately reflect the true costs of the preferred remedy. The cost estimate should neither underestimate nor overestimate the true cost of the remedy and it should clearly identify costs that have been estimated for contingencies and long-term monitoring and maintenance activities.

Moreover, the State requests that the NRRB and CSTAG consider whether the following refinements of remedial alternatives could substantially reduce costs while not decreasing overall protectiveness and feasibility:

- Eliminate ex situ treatment of principal threat waste unless required by RCRA/TSCA.
- Eliminate cap amendments even for principal threat waste (except in NAPL areas) unless they are determined to be necessary during remedial design (i.e., defer this determination to RD).
- Select enhanced monitored natural attenuation (EMNR) as a contingency measure for Swan Island Lagoon instead of a primary element of the remedy. Consider other opportunities for continent remedies.
- Reduce the physical isolation layer for sediment caps to the more traditional thickness of two feet unless a thicker layer is determined to be necessary during remedial design (i.e., defer this determination to RD).
- Reduce reliance on dredging in "Intermediate Areas" unless there is a clear impact on beneficial uses of the Harbor and perhaps defer this determination to RD.
- Set the maximum dredged depth to be more dependent on vertical contamination trends and consideration of incremental reduction in overall contaminant mass rather than a fixed maximum dredge depth of 15 feet as specified in EPA's draft FS. Also, switch to an engineered cap instead of dredging if removal does not substantial reduce contaminant mass. Possibly defer this determination to RD.
- Incorporate some level of flexibility during remedial design to switch between capping and dredging depending on the amount of debris, nature of docking and other structures, steepness of bed slopes and size of the designated cap or dredge area.
- Incorporate less aggressive PAH Remedial Action Levels (RALs) in navigational areas where direct exposure to this non-bio-accumulative contaminant is less likely.
- Refine GIS mapping where there appear to be anomalies that overestimate the size of the sediment management areas. We note that EPA's contaminant distribution maps show much larger areas of contamination than the corresponding LWG maps. EPA should compare its GIS interpolation protocol to the LWG's process detailed in Appendix E Chap 5 of their draft FS. We also encourage EPA to work with the LWG in solving this relatively simple technical difference.

Ability to Predict MNR Rates through Modeling

The State recognizes the importance of MNR in achieving the Remedial Action Objectives (RAOs). All Portland Harbor remedial alternatives rely on MNR, with the least aggressive (and least costly) alternatives requiring more MNR and the more aggressive (and more costly) alternatives requiring less MNR. The ability to quantify the time until RAOs are achieved is an inherent component of the NCP balancing factor short-term effectiveness. It is also a key tradeoff that EPA will need to balance in choosing a cost effective alternative. Ideally, EPA should develop modeling with an adequate level of confidence to estimate the time frame in which RAOs will be achieved.

The State acknowledges the significant efforts made by the LWG and EPA in attempting to estimate NMR rates through numerical modeling. The LWG has developed a comprehensive model which links discrete models for hydrodynamics, sediment transport, contaminant fate and transport and bioaccumulation. This comprehensive model is the evolution of multiple rounds of data collection and modeling efforts that were initially specified in the Portland Harbor RI/FS Programmatic Work Plan prepared by the LWG in 2004. Early attempts at modeling were made by WEST Consultants, Oregon DEQ and Windward Environmental. In 2010 the LWG consolidated the various models into the QEAFate model operated by AnchorQEA and the bioaccumulation model operated by Windward Environmental. The LWG worked closely with EPA and DEQ in defining appropriate input parameters and calibrating and validating these models. Final versions of these models are documented in Appendices Ha and Hb of the LWG's draft FS dated March 2012.

Notwithstanding these efforts, the LWG's MNR model appears to substantially over predict MNR rates in key hot spot areas which raise questions as to the ability of modeling to estimate the time until RAOs are achieved. Figures 3-1 through 3-31 of the LWG's draft FS Appendix Hb Attachment 1 show the predicted recovery of PCBs in small mouth bass over a 45 year period of time for the no action alternative and the 10 other remedial alternatives evaluated in the LWG's draft FS. Although EPA has modified these alternatives, these figures are representative of the ability of the LWG's MNR model to accurately predict recovery rates for PCBs and other bio-accumulative contaminants in fish tissue.

Exhibit B presents a series of excerpts from the LWG and EPA draft FSs that exemplifies the State's concerns with the current MNR model. Figure 1 depicts the complexities of the four individual models that comprise the LWG's MNR model. Figure 2 shows the highly dynamic nature of erosion/deposition within Portland Harbor. Figure 3 shows the highly localized, near shore nature of the PCB hot spots within Portland Harbor. Figure 4 shows the LWG's MNR model predictions at the RM11E area for the recovery of PCBs in small mouth bass tissue for the no action and other LWG alternatives. Figures 5 and 6 show similar results for the Gunderson and Evraz hot spot areas. What's most notable about these model predictions is that full recovery of tissue levels is achieved with 10 years under the no action scenario and a recovery of 50 to 80 percent is predicted within five years. Furthermore, the LWG's MNR model predicts very little, if any, difference in recovery rates in these areas between all remedial alternatives except during construction, when the model predicts high spikes in fish tissue due to contaminant resuspension and recontamination – thus favoring less aggressive alternatives. Figure 7 shows the empirical data for PCB concentrations in small mouth bass from samples collected in 2007 and 2012. The empirical data do not appear to match the recovery rates predicted by the LWG's MNR model. In fact, if the LWG's predicted recovery rates were to be accurate, these areas would have completely recovered because these hot spot areas are mostly defined by the LWG's Rounds 2 and 3 sampling which occurred in 2005 and 2007, respectively.

The State is also concerned that the LWG's MNR model may *under* predict natural recovery rates in off-channel, embayment areas like Swan Island Lagoon, Willamette Cove and International Slip where suspended sediment loads are predicted to be low.

In an attempt to assess the ability of the LWG's MNR model to accurately predict contaminant recovery rates, EPA evaluated the predicted versus measured changes in sediment bed elevation. These results are presented in Appendix F of EPA's draft FS. EPA found that the LWG's MNR model tends to over-predict deposition, particularly in areas where erosion is measured. The EPA also discovered anomalies with the interaction of the hydrodynamic and sediment transport models in that predicted depositional areas do not experience increased sheer stress as would be expected. As a result, EPA concluded that the utility of the LWG's model to evaluate MNR at the Portland Harbor Site is limited.

The State seeks input from the NRRB and CSTAG on the following questions so that we and EPA may better understand the viability of predicting MNR rates for Portland Harbor and options for selecting a remedial action in the absence of these predictions:

Question 1 – Does the NRRB and CSTAG agree with EPA's assessment that the utility of the LWG's model to evaluate MNR at the Portland Harbor Site is limited – in terms of evaluating the absolute as well as the relative effectiveness of the remedial alternatives in achieving RAOs through MNR?

Question 2 – Does the NRRB and CSTAG recommend that EPA delay issuing the ROD until an MNR model is developed that accurately predicts recovery timeframes?

Question 3 – Is there national precedence for EPA selecting a sediment remedy without a functioning MNR model?

Question 4 – Does EPA or the Corps of Engineers have resources at the national level that could resolve the shortcomings with the LWG's model without further delaying issuance of the ROD?

Question 5 – Given the current lack of confidence in the LWG's MNR model, could EPA's selected remedy incorporate an adaptive management framework that could be informed by potential improvements with the MNR model and/or post-ROD monitoring?

Reliance on Fish Advisories

EPA's remedy should not rely too heavily on institutional controls as a means of limiting fish consumption. Existing advisories do not appear to have deterred people from catching and eating fish from the Harbor and do not address the community and cultural values of being able to consume resident fish. For 15 years we have known that at the Portland Harbor:

- The primary risk to public health is from eating contaminated resident fish.
- People catch and eat resident fish.
- Fishing is little deterred by existing advisories and multilingual posted signs.

Additionally, fish consumption advisories disproportionately affect communities of color, low-income communities, immigrant populations, tribes and other indigenous peoples, given that these groups consume

fish at higher rates and according to different practices than the general population. One main assumption when fish advisories are issued is that there are adequate substitutes for fishing at the same place, in the same manner and for the same fish as practiced traditionally, or would today were the fish not contaminated. This type of assumption reflects a worldview that fishing and fish consumption are expendable "habits," "activities" or "behaviors" for which substitutes can be readily obtained, and that a groups' particular fishing and fish consumption practices can be altered without significant stress or loss.

Acknowledging that fish advisories will have to be used until RAOs are achieved, they should be as time-limited as possible and bridge as small of a risk gap as possible. Moreover, the remedy should ensure there are adequate budgetary resources allotted to public health agencies for implementing advisories, and detail the responsibility for monitoring the effectiveness of the remedy over time through fish tissue sampling and analysis. The State also seeks advice from the NRRB and CSTAG on methodologies for developing a better understanding of fish consumption rates in order to assess the effectiveness of the advisories and to refine the advisories as appropriate.

River Recreational and Fishing Access

The lower Willamette River is one of the most-used waterbodies in Oregon and Portland Harbor provides a wide variety of fishing and other recreational opportunities for the largest population center in the state. The State, therefore, encourages a remedy that results in as little curtailment to these activities as possible. Loss of boating access to the river; specifically, actions that would eliminate access at the two developed boat ramps at Cathedral Park and Swan Island Lagoon and any action that would preclude the development of additional boat access sites in the future, are of particular concern.

State Proprietary Authorization of Remedial Action and Impacts of Capping Large Areas of Sediment

The State is concerned about the potential significant impact of the remedial action on public trust resources of the state-owned submerged and submersible land that largely comprises the Portland Harbor. To the extent public trust values are significantly impacted by the remedy, compensation and/or mitigation is required.

Engineered caps, in particular, should be limited and designed (e.g., location, thickness, material, etc.) in a manner that minimizes the impact to public trust uses and that will require less compensation to the State. The State also does not support the use of highly restrictive "Regulated Navigation Areas" such as those promulgated for the McCormick & Baxter sediment cap and the GASCO Early Action temporary cap. The McCormick & Baxter NRA prohibits the following activities, as specified in 74 FR 5989:

- Anchoring.
- Spudding.
- Dredging.
- Laying cable.
- Dragging.
- Trawling.
- Conducting salvage operations.

- Operating commercial vessels of any size and operating recreational vessels greater than 30 feet.
- No wake zone.

Additional Considerations for Dredging and Capping

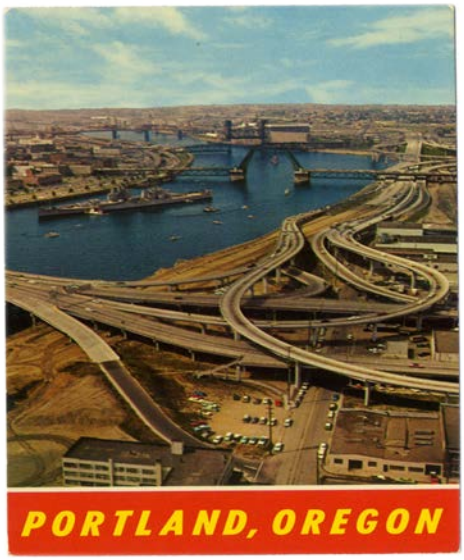
- **Protection and Enhancement of Shallow Water Habitats.** The State is concerned about protecting and enhancing shallow water habitats and does not want to see further reduction in the quality or quantity of this important habitat. Existing shallow water depths profiles should be maintained in areas requiring dredging as well as capping. And, shallow water sediment caps should be covered with habitat friendly substrate. Additionally, where the remedial action includes disturbance of riverbanks the State recommends that a more gradual slope be constructed consistent with upland uses. This will better connect the riverine habitat with the upland.
- **Adequacy of Engineering Controls During Dredging.** We recommend that EPA identify sites with significant levels of persistent, bioaccumulative and toxic substances and further describe the engineering controls necessary during dredging to limit releases and impacts to the food web.
- **Disposal Options.** EPA should not preclude the use confined disposal facilities as part of the remedy. A CDF at Terminal 4 can be designed and managed to be protective of people and the environment, and should be considered as an element of the remedy that is selected. Also, consideration should be given to placing dredged material in stable upland areas where adjacent facility property is available, particularly where contaminants are below levels protective of upland exposure pathways or where future upland remedies are planned. This would reduce transportation requirements and neighborhood disturbance.
- **Impacts on the State Transportation System.** The State encourages consideration of barge and rail transportation for off-site disposal of dredge material and import of capping materials. Transportation by trucks would result in increased road congestion that has economic, community livability and environmental impacts. On an infrastructure level, pavement performance and service life can be diminished with heavier traffic than what was anticipated during road design.
- **Sediment Management Area Delineation.** EPA should clarify the role of surface vs subsurface contaminant concentrations in SMA mapping during RD. The State believes that surface sediment (defined in the RI/FS as 0 – 30 cm) should be the primary factor that determinates SMA boundaries so that the realized benefits of MNR are accounted for in the final SMA-specific remedial designs. A secondary line of evidence should consider the magnitude of subsurface contamination in highly erosional areas, as was done with the Lower Duwamish Waterway Superfund Site. The State seeks input from the NRRB and CSTAG in developing a decision process for SMA mapping in light of the highly dynamic nature of deposition/erosion in Portland Harbor.
- **Additional In-Water Work Period.** There are two in-water work periods in the Harbor area: July 1st to October 31st and December 1st to January 31st. The second period is limited to activities below -20 feet National Geodetic Vertical Datum 1947. Flows are higher during the December to January in-water work period and migrating and rearing Chinook and Steelhead will preferentially use littoral and beach areas during this time period, so work in those areas should be avoided. However, this second window may allow for some dredging and capping activities that would shorten the total amount of time needed to complete the final remedy as well as reduce costs.

Exhibit A

Fact Sheet

Downtown Portland Sediment Study – 2011 Update

In 2008, the Oregon Department of Environmental Quality, City of Portland and other partners initiated a study of sediment quality in the downtown Willamette River reach. The study was conducted in two phases. Phase I included the collection and analysis of 117 sediment samples. Phase II included the collection and analysis of an additional 36 samples and the analysis of several samples archived during the Phase I study. These studies focused on polychlorinated biphenyls, also known as PCBs, dioxins/furans, pesticides (DDT, chlordane, dieldrin), polycyclic aromatic hydrocarbons, also called PAHs, metals (lead, mercury, arsenic), and tributyl tin.



1960s postcard of the Minnesota freeway (I-5)

Background

The downtown reach of the Willamette River, extending from the Steel Bridge to slightly upriver of Ross Island, has been heavily developed and modified during the past 150 years. Various industrial activities have occurred on the banks of the river, including ship building and breaking, heavy manufacturing, pesticide formulating, manufactured gas production, power generation and distribution, and lumber processing. Major transportation corridors also have played an important role in modifying this reach of the river. As a result of these activities, contaminants may have reached the river via riverbank erosion, direct surface runoff, stormwater discharges, wastewater discharges, overwater activities (including spills), and groundwater.

Until recently, most sediment data collected in this reach were associated with sites under active or past remediation, including Portland General Electric (PGE) Station L, Zidell, Ross Island, and the Portland Harbor Superfund Site. In the summer of 2008, an initial phase of investigation of the downtown reach was conducted through a collaborative effort by DEQ, the City of Portland, ZRZ Realty Company (Zidell), PGE, PacifiCorp, and Tri-Met. The purposes of this effort were to identify any priority areas where DEQ follow-up may be necessary, to focus on likely source areas not already addressed by investigations or cleanup, and to assess the potential for contaminated sediments to migrate downriver.

The Phase I data report was issued in January 2009. DEQ evaluated these data and prioritized nine areas where the initial data suggested elevated contaminant concentrations in river sediment. DEQ identified these areas for additional investigation.

A Phase II sampling plan was developed with the objectives of confirming initial detections, focusing future source identification efforts, and getting a sense of the extent of sediment contamination. PGE led the investigation of two focus areas (River Miles 13.1E and 13.5E) because of their proximity to current or historical PGE facilities. Tri-Met participated in this study to evaluate potential environmental impacts of constructing the new light rail bridge. Phase II sampling was completed in March 2010.

Phase II investigation details

The Phase II sampling event included the analysis of 7 archived surface and 15 subsurface sediment samples from the Phase I study, 27 new surface sediment samples, and 9 new sediment cores. In addition, bioassays were conducted on surface sediment samples from 5 locations to assess potential toxicity to benthic organisms that live in the sediment. At River Mile 13.1E and River Mile 13.5E, PGE sampled surface and subsurface sediment in a grid pattern as well as sampled beach sediment. Data reports for these investigations were prepared by PGE in June 2010 and April 2011.

State of Oregon
Department of Environmental Quality

DEQ Northwest Region Cleanup Program

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Last Updated: 11/29/11
By: Jennifer Sutter
09-LQ-095

Other cleanup work in the downtown reach

Significant sediment investigations and, in some cases, sediment cleanup actions have occurred or are taking place at the following locations within the downtown reach:

1. PGE Station L – cleanup is complete.
2. Ross Island – cleanup is complete.
3. Zidell facility – cleanup is complete.
4. Portland Gas Manufacturing (PGM) – remedial investigation is in progress.

In addition, several active cleanup projects are located in the upland drainage areas to this reach, including shoreline projects adjacent to the River Mile 13.3E and River Mile 14.1W focus areas.

DEQ evaluation of Phase II data

DEQ completed the evaluation of seven focus areas in July 2011 and currently is working with PGE on the investigation at the remaining two focus areas.

Recommendations by focus area are summarized in the following table. RM refers to River Mile.

Focus Area	Recommended Actions
RM 12.1E	Evaluate potential sites in the drainage basin – focus on outfall WR-309
RM 12.4W	Reassess priority following completion of the PGM investigation
RM 12.5E	Evaluate potential sites in the drainage basin – focus on outfall WR-315
RM 12.9W	Evaluate potential sites in the drainage basin – focus on outfall OF 08A
RM 13.1E	Continue working with PGE on source control/sediment assessment
RM 13.3E	Assess possible dioxin/furan sources as part of PGE preliminary assessment review. Conduct necessary source control action as part of Crescent Site assessment.
RM 13.5E	Continue to work with PGE on source control/sediment assessment
RM 14.1W	Address need for controls as part of future shoreline redevelopment
RM 15.1E	Sample stormwater solids draining to outfall OF 28

Reach-wide evaluation

Summary statistics, including surface weighted average concentrations, were compared to data from the Portland Harbor Superfund Site to assess the potential for the downtown reach to be a source of contamination to the Superfund Site. The small number of surface sediment samples collected relative to the area of the downtown reach makes this analysis challenging.

However, the comparison of the downtown reach to the Portland Harbor Superfund Site indicates that concentrations of contaminants of interest are generally significantly lower in the downtown reach than in the Portland Harbor Superfund Site. As a result, DEQ concluded that the downtown reach is unlikely to be a significant, ongoing source of contamination to the Portland Harbor Superfund Site.

DEQ expects that concentrations of contaminants in surface sediments in this portion of the Willamette River will decline over time as source areas are addressed, upland sources are controlled, and natural recovery mechanisms take effect.

Next steps

DEQ does not plan to conduct further area-wide evaluations of the downtown reach sediments. Future work will focus on active cleanup projects. Site discovery work, discussed above, will occur as DEQ resources are available.

Key documents of the downtown Portland sediment characterization are available at http://www.deq.state.or.us/lq/cu/nwr/willametteriver.htm

For more information please contact:
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Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 569.

Exhibit A

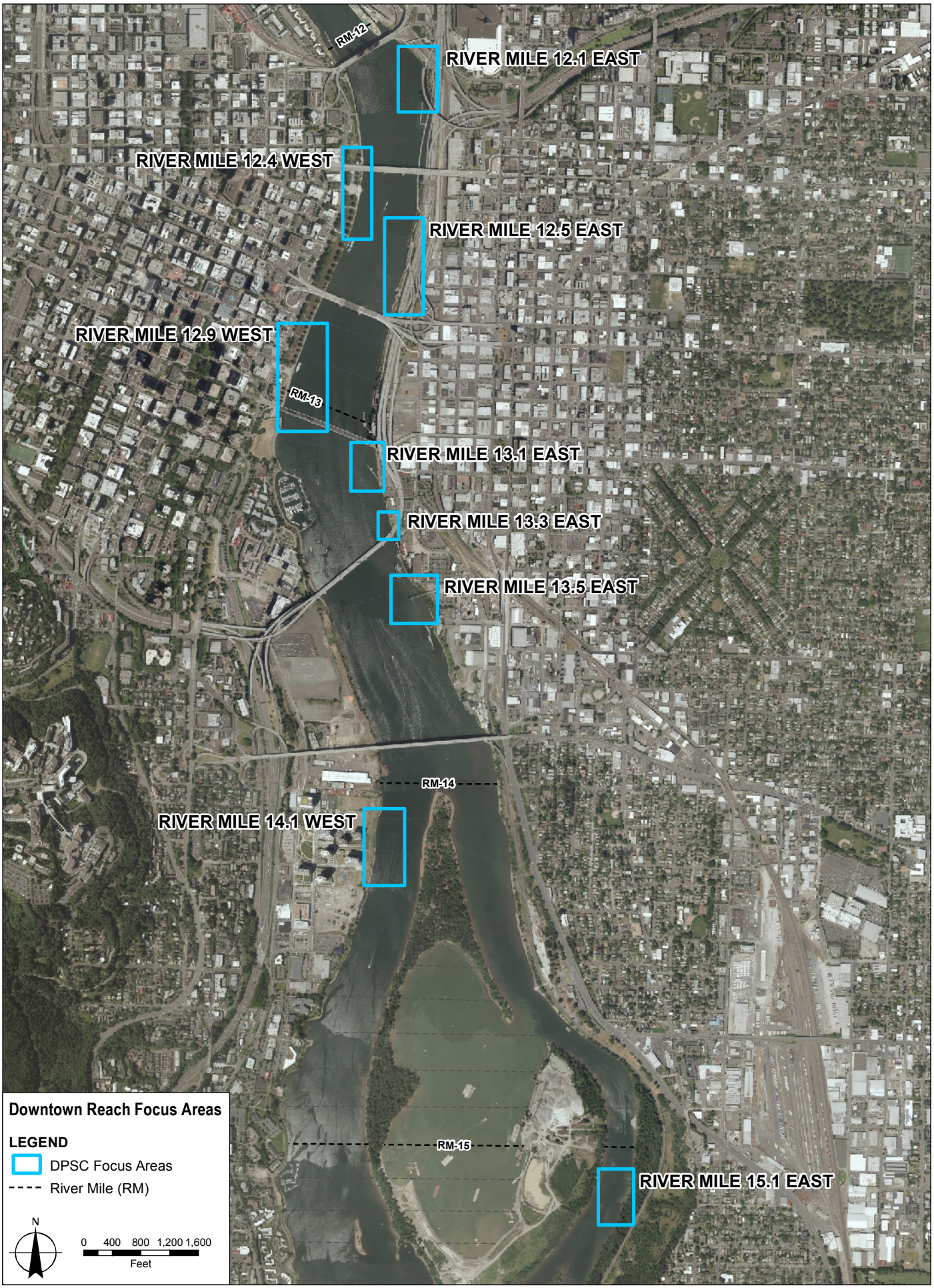

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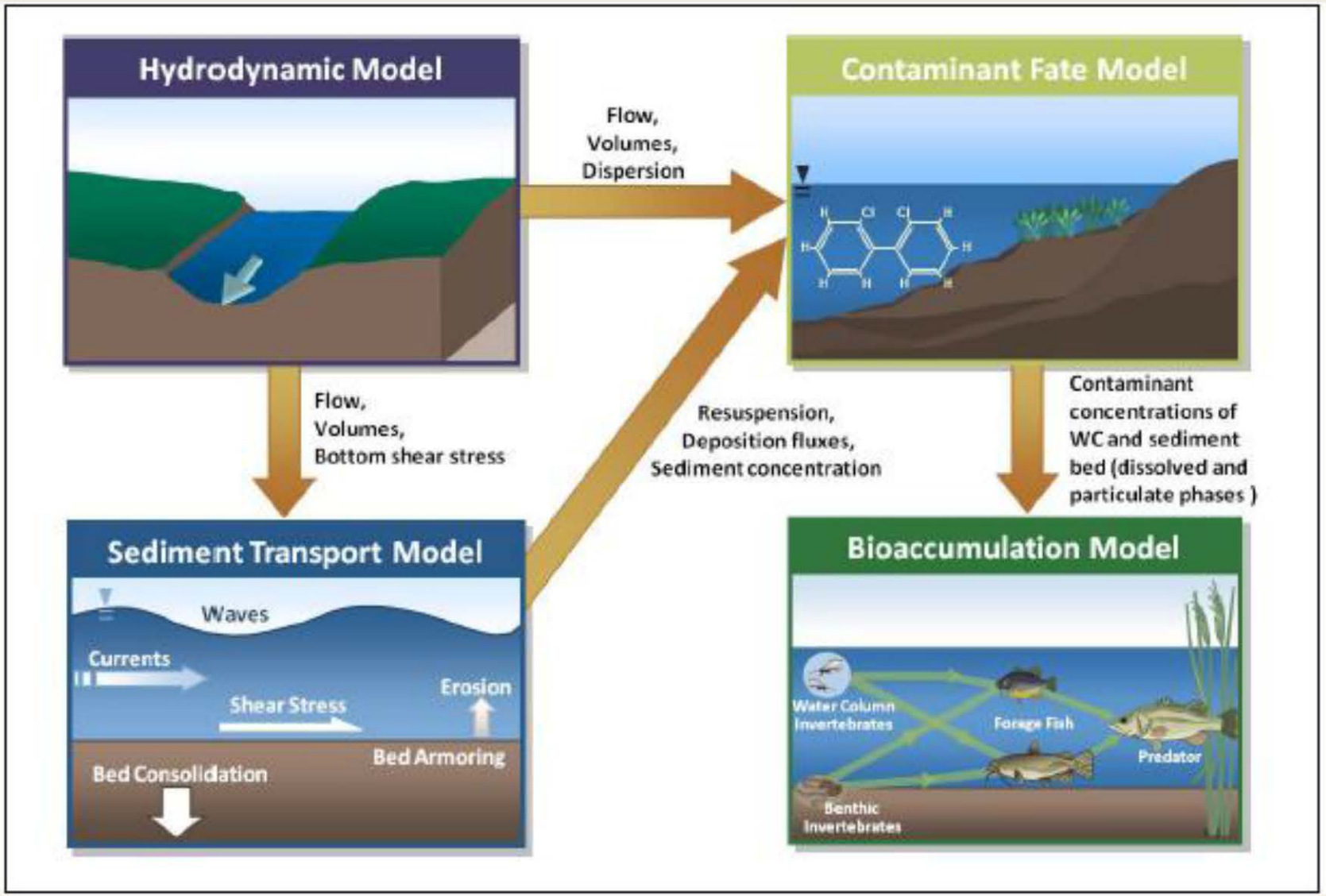
Exhibit B

LWG's MNR Modeling Approach



Excerpt from LWG Draft FS

Modeling Challenge

Exhibit B

Excerpt from EPA Draft FS

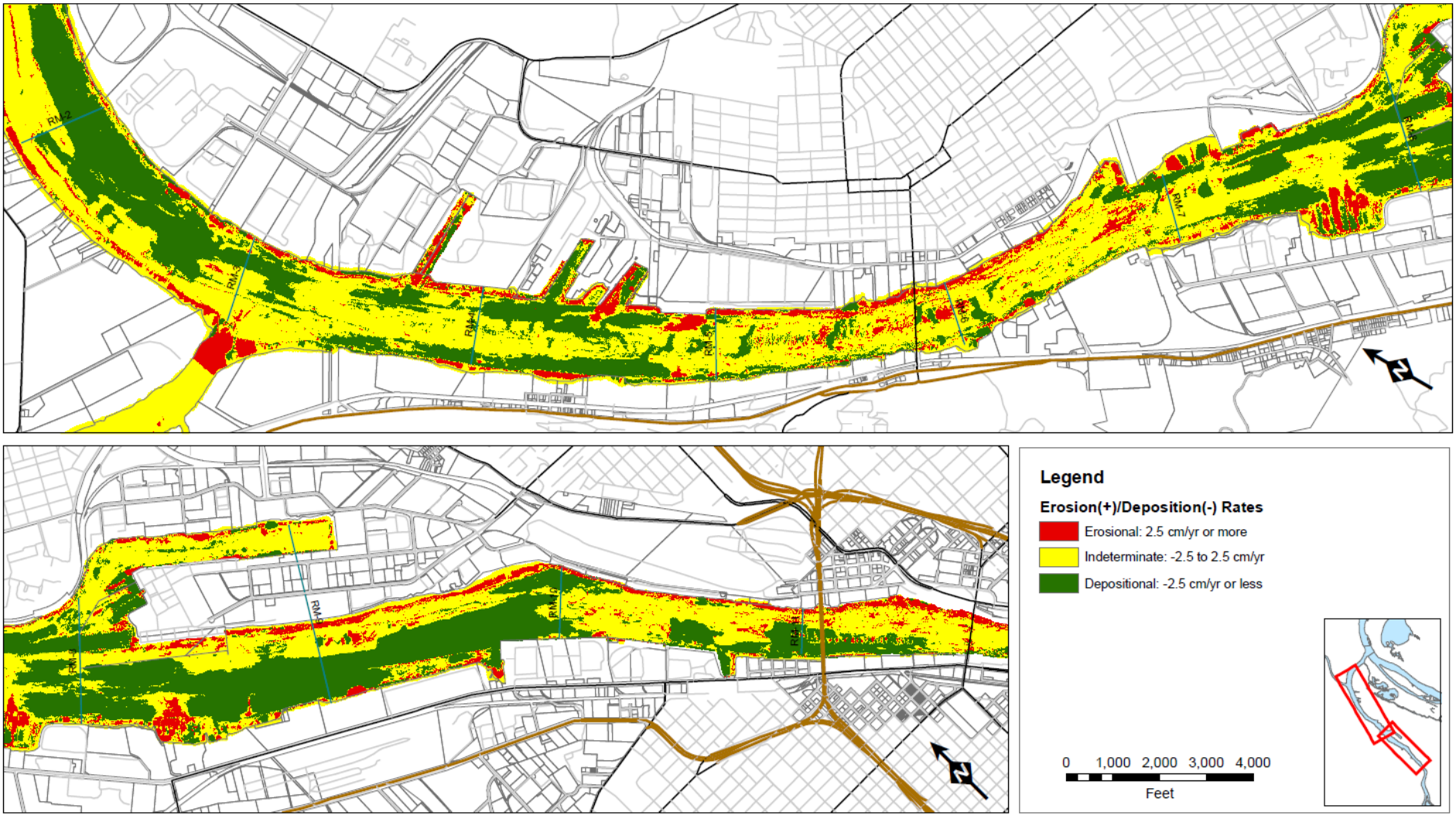
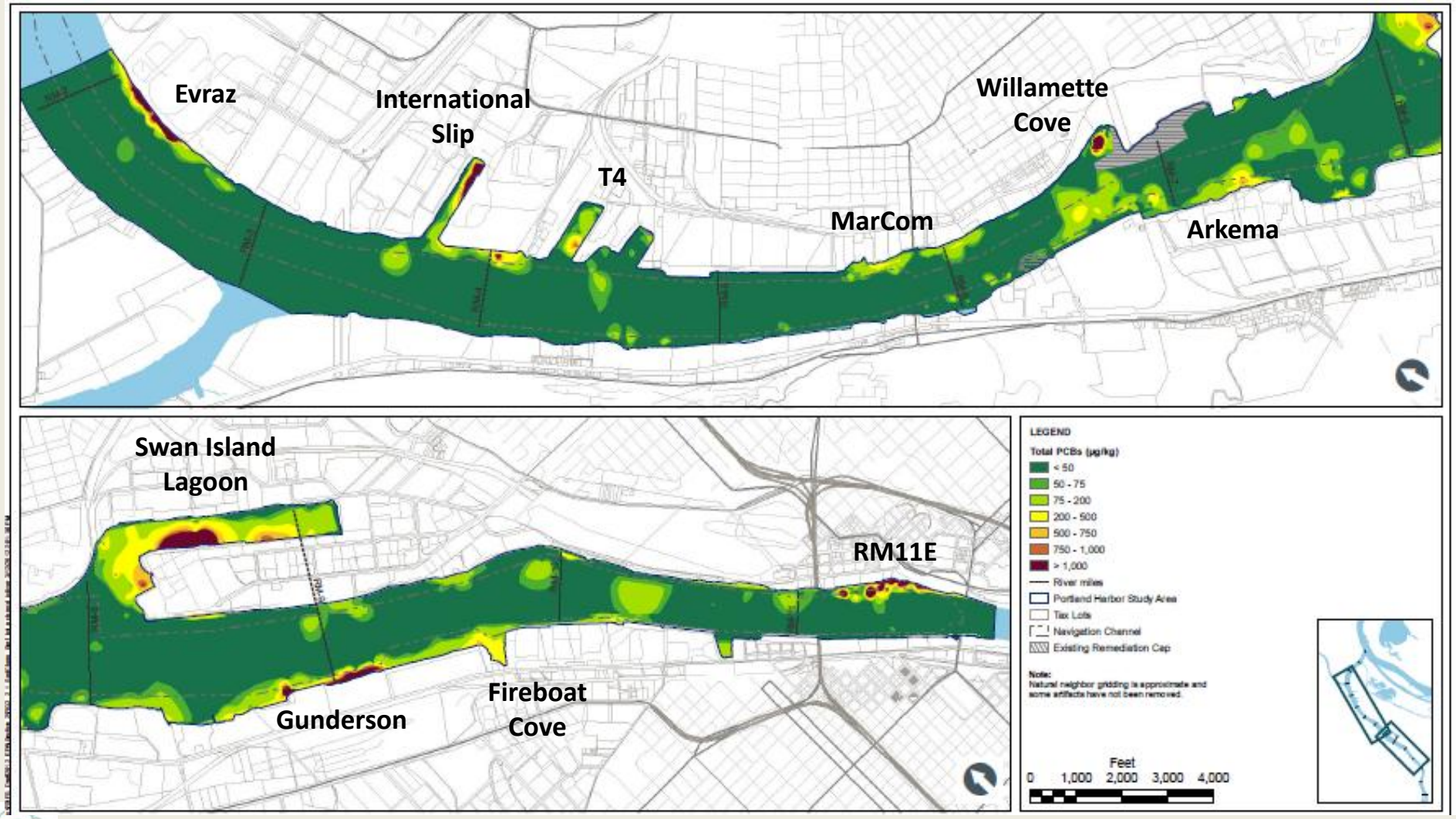


Exhibit B

Modeling Hot Spot (e.g., PCBs)

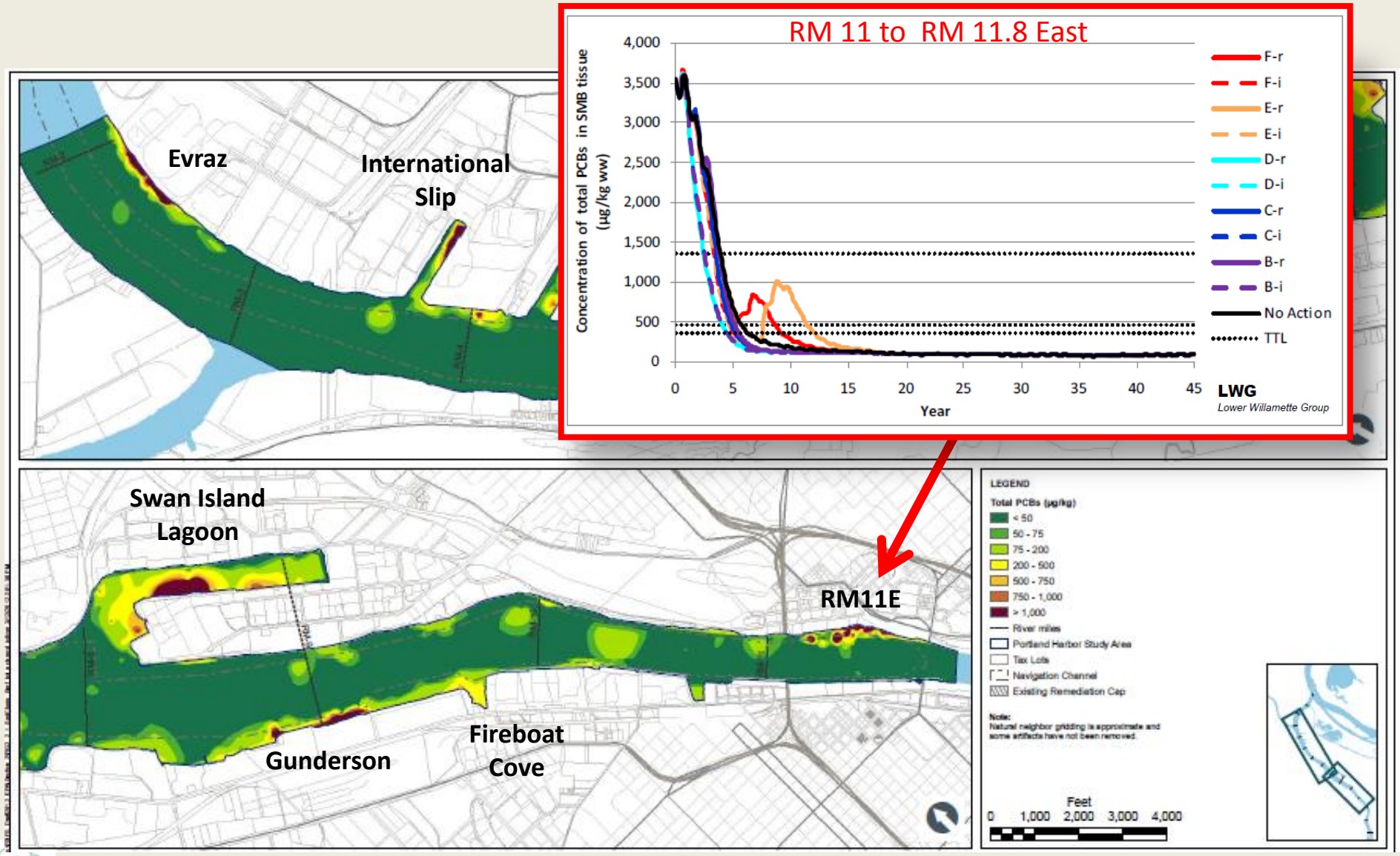
Excerpt from LWG Draft FS



RM11E Area Model Results

Exhibit B

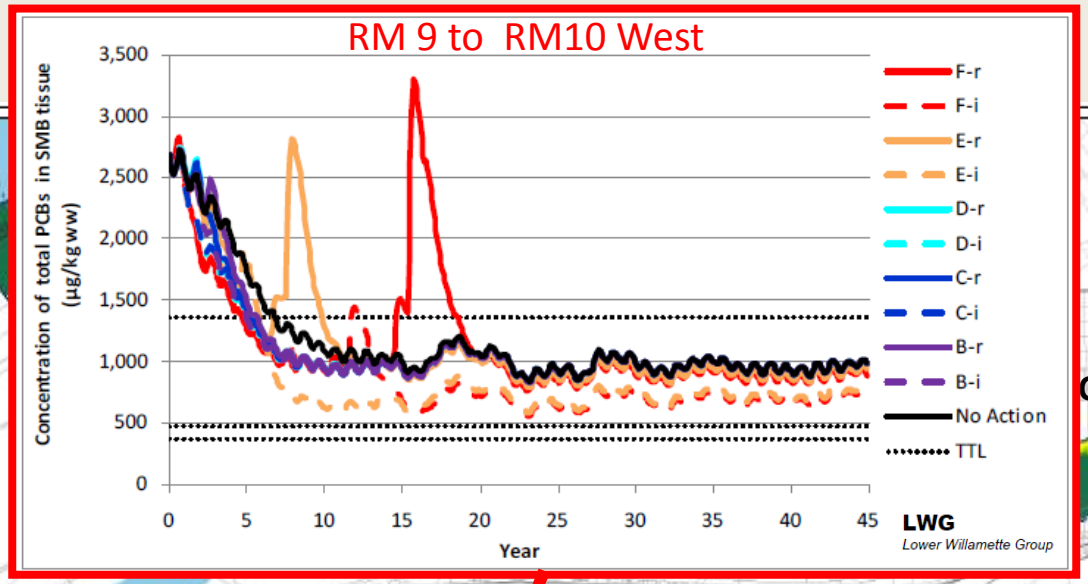
Excerpts from LWG Draft FS

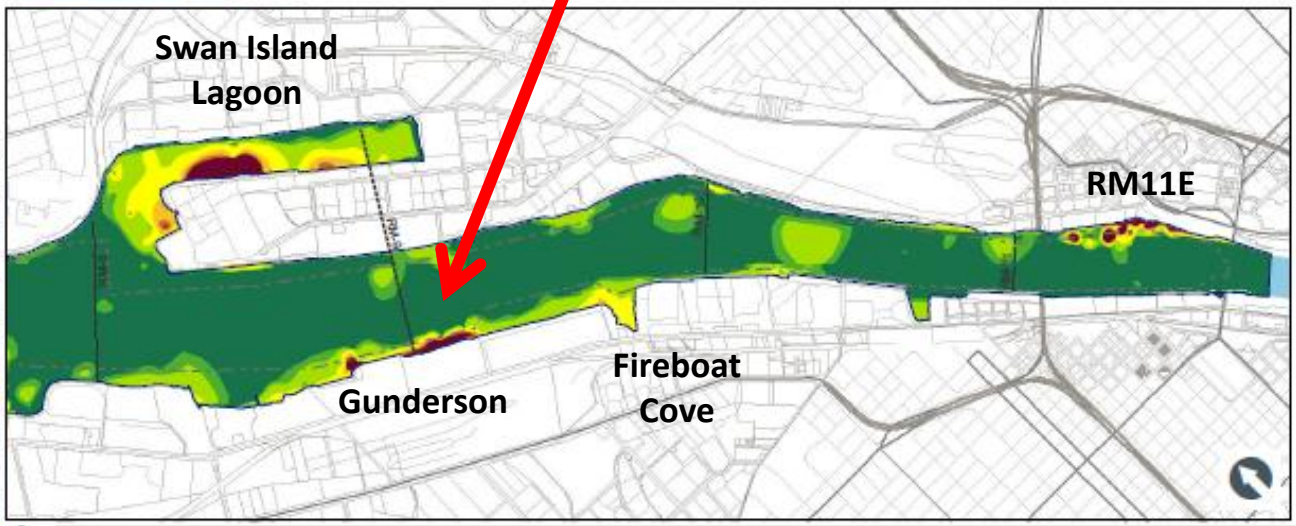


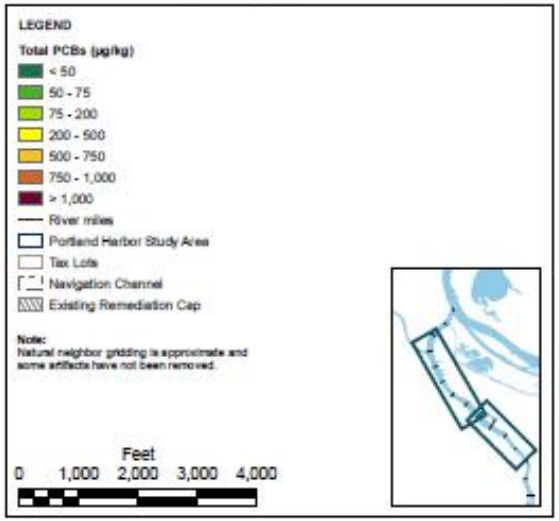
Gunderson Area Model Results

Exhibit B

Excerpts from LWG Draft FS







Evraz Area Model Results

Exhibit B

Excerpts from LWG Draft FS

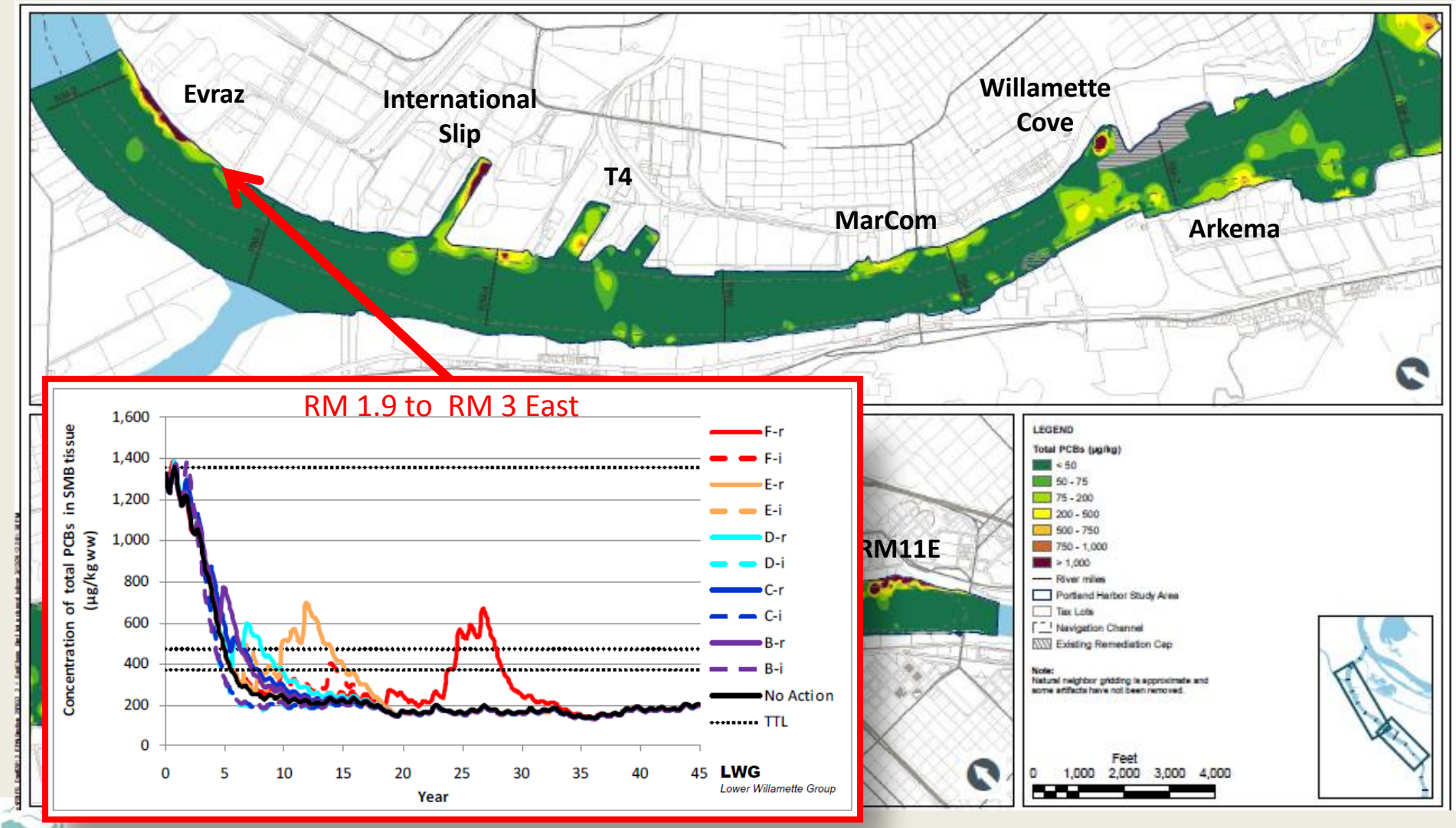
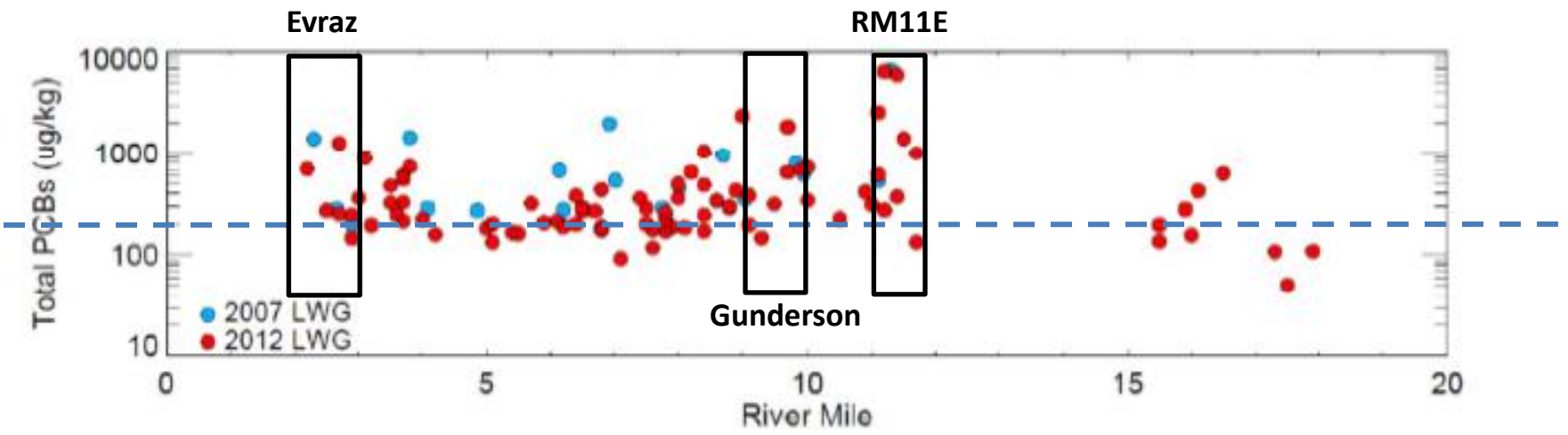


Exhibit B

Empirical Data

2007 and 2012 PCB Concentrations in Whole Smallmouth Bass by River Mile



EPA Draft Feasibility Study Figure 4.1-6 with